On-line Supplement Tab. 1. Details of phytosociological relevés sampled for the study. Relevés are arranged according to the result of the cluster analysis of UPGMA. C – herb layer, D – moss layer, + – taxon of low abundance (a few individuals), – – taxon absent in the plot, I–V – constancy classes (after Westhoff and van der Maarel 1978), * – alien species, [*] – species with uncertain geographical-historical status in the Polish flora.

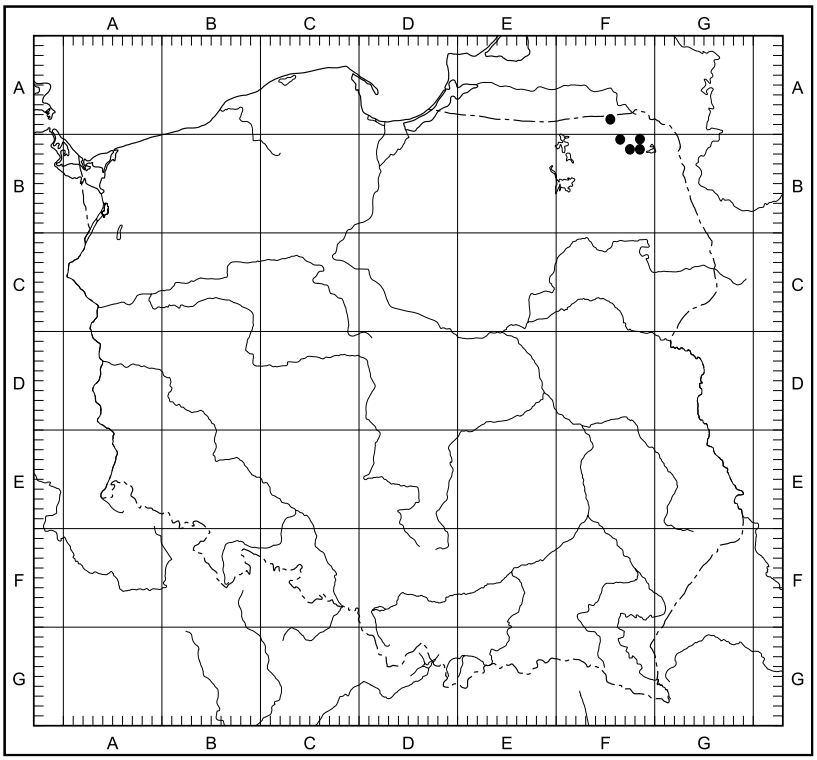
plot number		1	6	8	9	2	5	7	13	14	15	3	4	11	12	10	18	19	20	21	16	17	
plot size (m²)		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
herb cover (%)		60	60	40	30	60	50	50	30	40	30	80	90	80	90	80	80	80	80	80	80	80	constancy
moss cover (%)		30	20	70	25	20	20	50	40	30	20	–	10	5	–	–	–	–	–	–	5	5	
number of species		35	38	28	24	32	26	20	13	18	17	26	24	27	25	28	26	25	17	18	21	29	
Erigeron* × *huelsenii	C	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	V
Ch.Cl. *Stellarietea mediae*																							
**Erigeron canadensis*	C	+	1	2	1	1	+	2	1	2	1	1	1	2	2	1	2	2	2	1	1	+	V
**Matricaria maritima* subsp. *inodora*	C	–	–	–	–	–	–	–	–	–	–	+	+	+	+	+	–	–	–	–	–	–	II
**Anthemis arvensis*	C	–	–	–	–	–	–	–	–	–	–	+	+	–	–	–	–	–	–	–	–	–	I
Cirsium arvense	C	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	I
**Consolida regalis*	C	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	+	–	–	–	–	–	I
Convolvulus arvensis	C	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
**Corispermum leptopterum*	C	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
**Vicia hirsuta*	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	I
Ch.Cl. *Artemisietea vulgaris*																							
Artemisia vulgaris	C	+	+	–	–	+	1	–	+	+	+	+	+	+	1	–	–	–	+	+	+	+	IV
**Erigeron annuus*	C	+	+	1	–	+	–	+	–	+	–	+	+	+	+	–	+	–	+	+	1	+	IV
Anthemis tinctoria	C	1	+	+	–	+	+	+	–	+	+	–	–	–	–	–	+	+	–	–	–	–	III
[*]*Oenothera biennis*	C	+	+	+	+	–	1	1	1	+	+	–	–	–	–	–	–	–	–	–	–	–	III
Medicago lupulina	C	–	–	+	+	–	–	–	–	–	–	–	–	+	–	–	–	+	–	–	–	+	II
**Melandrium album*	C	–	+	–	–	–	–	–	–	–	–	–	+	+	+	+	+	–	–	–	+	–	II
Poa compressa	C	–	1	2	1	–	–	3	2	2	2	–	–	–	–	–	–	–	–	–	–	–	II
**Artemisia absinthium*	C	+	+	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	I
[*]*Berteroa incana*	C	+	1	–	+	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	I
Calamagrostis epigejos	C	4	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Elymus repens	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	I
Equisetum arvense	C	–	–	–	–	–	–	–	–	–	–	–	–	+	+	–	–	–	–	–	+	+	I
Linaria vulgaris	C	–	–	–	–	+	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	I
**Medicago sativa*	C	–	–	–	–	–	–	–	–	–	–	–	–	1	+	+	–	–	–	–	–	–	I
Melilotus alba	C	+	+	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Picris hieracioides	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	+	I
Verbascum thapsus	C	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Ch.Cl. *Koelerio-Corynephoretea*																							
Arenaria serpyllifolia	C	+	+	1	+	–	+	–	+	+	–	–	–	+	–	+	–	–	–	–	–	–	III
Sedum acre	C	+	+	2	2	+	1	1	2	1	2	–	–	–	–	–	–	–	–	–	–	–	III
Helichrysum arenarium	C	+	–	–	–	–	–	2	1	1	+	–	–	–	–	–	–	–	–	–	–	–	II
Potentilla argentea	C	+	+	–	–	+	–	–	–	–	–	+	–	–	–	–	+	–	+	+	–	–	II
Trifolium arvense	C	+	+	1	+	–	+	–	–	–	–	–	–	–	–	1	+	+	–	–	–	–	II
Acinos arvensis	C	+	–	–	–	+	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	I
Alyssum alyssoides	C	+	1	–	–	–	–	+	–	+	–	–	–	–	–	–	–	–	–	–	–	–	I
Bromus hordeaceus	C	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	I

On-line Supplement Tab. 1. – continued

plot number		1	6	8	9	2	5	7	13	14	15	3	4	11	12	10	18	19	20	21	16	17	
plot size (m²)		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	constancy
herb cover (%)		60	60	40	30	60	50	50	30	40	30	80	90	80	90	80	80	80	80	80	80	80	
moss cover (%)		30	20	70	25	20	20	50	40	30	20	–	10	5	–	–	–	–	–	–	5	5	
number of species		35	38	28	24	32	26	20	13	18	17	26	24	27	25	28	26	25	17	18	21	29	
Herniaria glabra	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	I
Rumex acetosella	C	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	I
Ceratodon purpureus	D	–	2	4	–	1	1	2	3	3	2	–	2	–	–	–	–	–	–	–	–	–	III
Brachythecium albicans	D	–	–	2	1	2	+	–	–	+	+	–	–	–	–	–	–	–	–	–	–	–	II
Racomitrium canescens	D	–	+	–	2	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Ch.Cl. *Molinio-Arrhenatheretea*																							
Achillea millefolium	C	–	–	–	+	+	1	–	–	–	–	2	1	1	+	+	1	+	–	1	+	–	III
Dactylis glomerata	C	–	2	–	–	1	–	–	–	–	–	3	1	3	4	1	1	1	–	1	3	2	III
Galium mollugo	C	1	2	–	–	+	–	–	–	–	–	+	+	–	+	+	+	+	–	–	–	–	III
Plantago lanceolata	C	+	+	–	–	–	–	–	–	–	–	1	1	1	1	1	+	–	2	2	2	+	III
Trifolium pratense	C	–	–	–	–	–	–	–	–	–	–	2	3	1	1	2	2	1	2	2	+	1	III
Cerastium holosteoides	C	–	–	–	–	–	–	–	–	–	–	–	–	+	+	–	+	+	+	+	–	+	II
Festuca rubra s. l.	C	–	2	–	2	2	2	–	–	–	–	–	–	1	–	2	–	–	–	–	–	3	II
Knautia arvensis	C	+	+	+	–	+	+	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	II
Lolium perenne	C	–	–	–	–	–	–	–	–	–	–	+	–	2	1	–	–	–	–	–	1	+	II
Phleum pratense	C	–	–	+	+	–	–	–	–	–	–	+	2	–	–	1	–	–	–	–	+	–	II
Arrhenatherum elatius	C	–	–	–	1	–	–	–	–	–	–	–	–	–	1	1	–	–	–	1	–	–	I
Holcus lanatus	C	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Leontodon autumnalis	C	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	+	–	+	–	–	–	I
Leontodon hispidus	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	+	–	I
Leucanthemum vulgare	C	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	I
Poa pratensis	C	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Rumex crispus	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	I
Tragopogon pratensis	C	–	–	–	–	–	–	–	–	–	–	–	–	+	–	+	–	–	–	–	–	–	I
Trifolium hybridum	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	I
Trifolium repens	C	–	–	–	–	–	–	–	–	–	–	+	+	–	–	–	–	–	–	–	–	–	I
Veronica chamaedrys	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	+	I
Vicia cracca	C	–	–	+	–	+	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	+	I
Ch.Cl. *Festuco-Brometea*																							
Artemisia campestris	C	+	+	1	1	1	2	1	2	1	+	+	+	–	+	+	+	+	+	–	–	+	V
Senecio jacobaea	C	+	–	–	–	+	+	–	–	–	–	+	–	–	+	+	–	+	+	+	–	–	III
Centaurea stoebe	C	1	1	+	+	+	+	+	–	–	–	–	–	–	–	–	–	+	–	–	–	–	II
Hypericum perforatum	C	+	1	+	–	–	–	–	–	–	–	–	–	–	+	–	+	+	–	–	+	+	II
Medicago falcata	C	+	2	1	–	1	1	1	–	2	+	–	–	–	–	–	–	–	–	–	–	–	II
Pimpinella saxifraga	C	+	–	–	–	2	+	–	–	–	–	–	–	–	–	+	+	–	–	+	–	+	II
Anthyllis vulneraria	C	–	+	–	+	+	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Briza media	C	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Centaurea scabiosa	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	I
Galium verum	C	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I

On-line Supplement Tab. 1. – continued

plot number		1	6	8	9	2	5	7	13	14	15	3	4	11	12	10	18	19	20	21	16	17	
plot size (m²)		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	constancy
herb cover (%)		60	60	40	30	60	50	50	30	40	30	80	90	80	90	80	80	80	80	80	80	80	
moss cover (%)		30	20	70	25	20	20	50	40	30	20	–	10	5	–	–	–	–	–	–	5	5	
number of species		35	38	28	24	32	26	20	13	18	17	26	24	27	25	28	26	25	17	18	21	29	
Phleum phleoides	C	–	–	–	–	2	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Others																							
Erigeron acris	C	1	1	1	1	1	2	2	1	1	1	+	+	+	–	1	1	1	+	+	1	+	V
Agrostis capillaris	C	–	1	–	–	–	–	–	–	–	–	2	3	1	1	2	3	3	3	3	–	–	III
Hieracium pilosella	C	+	3	1	+	1	–	1	+	–	+	+	+	1	+	–	–	–	–	–	–	–	III
Echium vulgare	C	+	+	+	+	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	II
Hypochoeris radicata	C	–	–	–	–	–	–	–	–	–	–	1	+	+	–	+	+	+	1	1	–	–	II
Solidago virgaurea	C	–	–	–	–	1	–	–	–	–	–	–	+	+	–	+	+	+	–	–	+	+	II
Taraxacum sp.	C	–	–	–	–	–	–	–	–	–	–	+	+	1	1	+	+	+	–	–	–	+	II
Betula pendula	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	I
Euphorbia esula	C	+	1	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Fragaria vesca	C	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	I
Gnaphalium sylvaticum	C	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	+	–	–	+	+	I
Heracleum sibiricum	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	I
Hieracium umbellatum	C	–	–	–	–	–	–	–	–	–	–	+	–	–	–	+	–	+	–	–	+	–	I
**Malus domestica*	C	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
**Myosotis arvensis*	C	–	–	–	–	–	–	–	–	–	–	–	–	+	+	–	+	–	–	–	–	–	I
Pinus sylvestris	C	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Populus tremula	C	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
[*]*Rumex thyrsiflorus*	C	–	+	–	+	–	–	–	–	–	–	+	–	–	+	–	–	–	–	–	–	–	I
Sedum maximum	C	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Silene vulgaris	C	–	–	–	–	–	–	–	–	+	+	–	–	–	–	+	–	+	–	–	–	–	I
**Solidago canadensis*	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	1	I
**Solidago ×niederederi*	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	I
Thymus pulegioides	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	I
Trifolium medium	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	I
Rhitidiadelphus squarrosus	D	2	2	2	+	1	1	–	–	–	–	–	–	1	–	–	–	–	–	–	+	+	III
Cladonia cornuta	D	2	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Cladonia fimbriata	D	2	+	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Nostoc commune	D	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I
Peltigera canina	D	–	–	2	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	I



On-line Supplement Fig. 1. Location of studied sites within the ATPOL cartogram grid (Zając 1978).